Claims

1. An inner magnetic shield material for use in manufacturing an inner magnetic shield to be installed inside a color picture tube, comprising a steel strip having a coating film of an organic resin which consists essentially of C and H, or of C, H, and O, or of C, H, O, and N on at least one surface of the steel strip,

characterized in that the at least one surface of the steel strip has a surface roughness (Ra) of 0.2 - 3 μm, the organic resin coating film has a thickness (T) of 0.1 - 6 μm, and the ratio T/Ra is in the range of 0.2 - 4.0.

2. An inner magnetic shield material for use in manufacturing an inner magnetic shield to be installed inside a color picture tube, comprising a steel strip having a coating film of an organic resin which consists essentially of C and H, or of C, H, and O, or of C, H, O, and N on at least one surface of the steel strip,

characterized in that the at least one surface of the steel strip has a surface roughness (Ra) of 0.2 - 3 μm, the organic resin coating film has a thickness (T) of 0.1 - 6 μm, and this coating film contains particles of a wax dispersed therein, wherein the ratio (ϕ/T) of average particle diameter (ϕ) of the wax to film thickness (T) is in the range of 0.5 - 5, and the content of the wax in the film is such that 2 - 20% of the surface of the coating film is occupied by the wax when the surface is observed under an electron microscope.

3. An inner magnetic shield material as recited in claim 2, wherein the ratio T/Ra is in the range of 0.2 - 4.0.

4. An inner magnetic shield material as recited in any one of claims 1 to 3, wherein the organic resin coating film contains one of (a) at least one coupling agent in a total amount of 2 - 50 wt% and (b) at least one metal oxide selected from SiO_2, Fe_3O_4, Fe_2O_3, Ni-O, Zr-O, Cr_2O_3, and Al_2O_3 in a total amount of 2 - 80 wt%, or both (a) and (b).

5. An inner magnetic shield material as recited in any one of claims 1 to 3, wherein the organic resin is combustible for decomposition by heating in air at a temperature of 450°C or below.

6. An inner magnetic shield material as recited in any one of claims 1 to 3, wherein the Si and Al contents ([Si] and [Al], respectively, in wt%) of the steel strip satisfy the following inequalities:

$[Si] \geq 0.02$, $0.25 \leq [Si] + [Al] \leq 0.55$, $0.05 \leq [Al] - [Si] \leq 0.35$.

7. An inner magnetic shield material as recited in any one of claims 1 to 3, wherein the steel strip has a plated film with a coating weight of 0.1 - 20 g/m^2 as a primary coat under the organic resin coating film, the plated film being formed of a metal selected from Ni, Cr, and Fe or an alloy based on the metal.

8. A method of manufacturing an inner magnetic shield material comprising forming a coating film of an organic resin consisting essentially of C and H, or of C, H, and O, or of C, H, O, and N on at least one surface of a cold rolled steel strip or pickled hot rolled steel strip,

characterized in that the at least one surface of the steel strip has a surface roughness (Ra) of 0.2 - 3 μm, the organic resin coating film has a thickness (T) of 0.1 - 6 μm, and the ratio T/Ra is in the range of 0.2 - 4.0.

9. A method of manufacturing an inner magnetic shield material comprising forming a coating film of an organic resin consisting essentially of C and H, or of C, H, and O, or of C, H, O, and N on at least one surface of a cold rolled steel strip or pickled hot rolled steel strip,

characterized in that the at least one surface of the steel strip has a surface roughness (Ra) of 0.2 - 3 μm, the organic resin coating film has a thickness (T) of 0.1 - 6 μm, and this coating film contains particles of a wax dispersed therein, wherein the ratio (ϕ/T) of average particle diameter of the wax (ϕ) to film thickness (T) is in the range of 0.5 - 5, and the content of the wax in the film is such that 2 - 20% in area of the surface of the coating film is occupied by the wax when the surface is observed under an electron microscope.

10. A method as recited in claim 9, wherein the ratio T/Ra is in the range of 0.2 - 4.0.

11. A method as recited in any one of claims 8 to 10, wherein the organic resin coating film contains one of (a) at least one coupling agent in a total amount of 2 - 50 wt% and (b) at least one metal oxide selected from SiO_2, Fe_3O_4, Fe_2O_3, Ni-O, Zr-O, Cr_2O_3, and Al_2O_3 in a total amount of 2 - 80 wt%, or both (a) and (b).

12. A method as recited in any one of claims 8 to 10, wherein the cold rolled steel strip or pickled hot rolled steel strip is subjected, prior to the formation of the organic resin coating film, to pretreatment by applying one of (1) an acid selected from hydrochloric acid, sulfuric acid, nitric acid, and a mixture of these and

(2) an acidic solution containing ions of at least one metal selected from Ni, Co, Fe, Zr, Sb, V, Mo, and W, or both (1) and (2).

13. A method as recited in any one of claims 8 to 10, wherein the cold rolled steel strip or pickled hot rolled steel strip is subjected, prior to the formation of the organic resin coating film, to plating with a metal selected from Ni, Cr, and Fe or an alloy based on the metal to form a plated film with a coating weight of 0.1 - 20 g/m^2.

14. An inner magnetic shield manufactured from the inner magnetic shield material as recited in any one of claims 1 to 3 without blackening treatment.

15. A color picture tube having an inner magnetic shield as recited in claim 14.